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Street-Trees.

A YOUNG tree on the border of a city street can never be said to have congenial surroundings, even when the utmost pains have been taken at the outset to plant it properly and to give intelligent attention to its needs so far as possible thereafter. Many kinds of trees will absolutely refuse to live in an atmosphere filled with smoke and dust, even when the drainage system of the city does not rob their roots of the water which is essential to their nourishment. The hardships which a street-tree must undergo make it all the more necessary that only the most promising individuals of the kinds best suited to endure the trying conditions of city life should be selected. This means that nursery-grown trees, with abundant roots and pruned for the purpose, should invariably be used.

It is plain that trees of one variety only should be planted in a long, straight row parallel with the lines of buildings in a continuous street. Much of the desired effect will be lost if the trees vary in form or size, or expression, or rapidity of growth, or in the time of putting forth their leaves or shedding them. An avenue of American Elms, with their lofty overarching tops, is always beautiful, because the charm of each tree is renewed in the next, and the effect of the whole is constantly intensified and multiplied by repetition. An avenue of stately Tulip-trees is equally beautiful, but in an entirely different way. The same might be said of a double row of Pin Oaks, where there is space for their drooping lower branches. But if all these trees were intermingled, and Sugar Maples, Horse Chestnuts and others still were added, the result would be incongruous and contradictory. There would be no continuous lines extending through the entire vista to help the perspective and to give unity of character and expression and consistency of purpose to the whole. And yet in our city street-planting it is the common practice to allow each lot owner to select the tree which suits his fancy. The immediate effect is bad enough, but it grows worse as years roll on and the individual trees become more and more unlike each other as their peculiar characteristics are more strongly marked with age.

But even when the best selection is made, disappointment and failure will be the inevitable result unless the ground is properly prepared and the planting carefully done. A street grade is often made several feet below the natural surface of the ground, and of course this subsoil is not in a suitable mechanical condition to receive the roots of trees, nor does it contain the necessary nourishment. Or, again, a street may be raised as much above the natural level, filled in at the bottom, perhaps, with large rocks which have been thrown together so as to leave air spaces between them, and this open foundation may be covered with a stratum of all sorts of rubbish. No tree can be planted in such a situation with any promise of health or long life. In most cases, an excavation twenty feet across and three feet deep, filled in with good loam, will make a safe place in which to plant a tree, but even here the tree will be doomed to early death if it is just over such a foundation of broken rock as has been mentioned above. We might add that street-trees should always be planted far enough apart to give each one an opportunity to develop into its best proportions, but perhaps many persons who read this already feel inclined to resent the frequent iteration of these elementary principles. And yet there is hardly a city in the United States where every one of the ordinary, common-sense rules and precautions which should be regarded in planting street-trees is not almost constantly violated. The fact is, that this article was itself suggested by some planting in this city which recently fell under our observation.

West End Avenue, a broad street on the heights between Riverside and Central Parks, is laid out with a strip of turf some eight feet wide on either side between the sidewalk and wheelway. In each strip is a double row of trees, not planted in pairs, but alternately—that is, with one tree near the outer margin of the grass, and then another near the inner margin. The shortest or diagonal distance between these trees is about fourteen feet. They are Red Maple saplings, apparently pulled up from a swamp where they stood very closely, so that they had grown up straight and slender to a height of probably fifteen feet, with very few, if any, side branches. The tops were all cut off at a height of about ten feet, leaving bare poles above ground and a few of the larger roots below. These trees were planted in the autumn of 1887 and the following spring, and have, therefore, had two summers to grow in, but as a matter of fact there has been no growth. Clusters of little branches have been thrown out at the tops and at a few points on the sides of the mutilated stems, and these tufts of foliage may prolong the life of the trees for a time; but they are rather signs of approaching death than of life. Many of the trees are already leaning over and ready to fall. In short, here is a street nearly two miles long, planted with at least three times as many trees as should have been used—trees of a variety unsuited to the position they occupy, and not a single individual of them all a specimen well grown and pruned for this purpose. The city has paid some $20,000 for this work, which is absolutely worthless—worse than worthless, indeed; for while these trees are dying, years are wasted in which good trees could have been making substantial growth, and even now they would have been delighting all beholders with their beauty, and still more with the cheerful promise of increasing attractiveness for years to come.

If this were an isolated instance it would be sufficiently depressing, but equally bad examples of contract-planting by municipal authorities can be pointed out in almost every one of our large cities. The streets of our towns and cities will never be shaded by handsome and well-cared-for trees until they are placed in charge of some competent and responsible officers, whose duty it is to superintend all planting, and all pruning, too; for now no street-tree, however beautiful, is safe from the attacks of axes and saws in ignorant hands, which not only destroy its symmetry, but leave it with raw wounds to invite the entrance of destructive fungi, which bring disease and premature death.

Professor Kellerman, in *The Industrialist*, quotes approvingly what was said in our issue of January 22d of the ornamental value of the Celtis or Hackberry, as it is usually called in the west, and he adds that in Kansas it has a greater relative value than in well-timbered regions, where so many kinds of trees grow in perfection. In the state, which includes a large portion of what was once known as the "Great American Desert," the Hackberry is one of the few trees which can withstand the drought, hot winds and other trying characteristics of that variable climate. Professor Kellerman, however, calls attention to the fact that the annual report of the Kansas College Experiment Station for 1888 gave a full account of an insect—a species of Phytopus—and of its invariably accompanying fungus (*Sphærotheca phytoptophila*, Kell. & Sw.), which are doing great injury to the Celtis in that region. The insect is a gall-mite and the fungus a species of powdery mildew, and they cause what is known as "Hackberry knot," an abnormal growth which seriously injures the health and appearance of the tree. The disease is said to occur in the eastern part of Kansas, and it extends westward as far as the forest-trees extend. It is also reported in Iowa. Professor Kellerman has not found the trees in the forest abundantly attacked, but most of the isolated ones are disfigured by the multiplying knots until they become very unsightly and finally die. No remedy has been experimentally determined upon except cutting off and burning the infected parts.

A figure of one of these knots is given in *The Industrialist*, and we refer to it because we have recently observed a similar appearance on many specimens of the Celtis in Central Park, in this city. A more careful investigation will be needed to identify this disease with the western one, but it is not improbable that trees of this species throughout the country have found a serious enemy.

Japanese Dwarf Plants at Paris.

IT is well known that the Japanese landscape-gardener prides himself on his treatment of areas so small that we should give them up to a gravel walk and a couple of Geranium beds. So it was a disappointment not to find, on the soil of the Japanese Horticultural Section in the Exhibition grounds at Paris, some illustration of his practice.

The Japanese Horticultural Section was only a small space on a rather steep part of the Trocadéro slope, surrounded by a rough bamboo fence which would doubtless have looked pretty amid consonant surroundings, but seemed a little slovenly and poor by contrast with neighboring French arrangements, which were scrupulously trim and durable looking. Almost the whole of the enclosed space was laid out in a series of low terraces, each of which bore a row of potted plants.

I was not wise enough to know whether any of these plants had especial interest for the European botanist. But I soon saw that some of them were extremely interesting to the cultivator and the student of art. These were the examples of dwarfed trees. We have become familiar, in our own gardens, with certain dwarf varieties of trees produced in Japan, as with many kinds of little Maples; but I speak especially of dwarfed specimens of individuals which, if left to themselves, would have been large, but which generations of gardeners had patiently restricted to the most exiguous proportions. These we constantly see in Japanese pictures, but there is seldom a chance to behold them alive.

In the *Bulletin de la Société Botanique de la France* some facts were recently given with regard to the method of their production, on the authority of two Japanese connoisseurs, one of whom was an exhibitor in Paris. The chief point is that the trees are grown in the smallest possible quantity of soil. The baby plants are put in pots so small that their roots soon fill them entirely, and, seeking further nourishment, break out above the surface. Then a somewhat larger pot is given, in which, however, the same want of sufficient nourishment soon produces the same result; and this treatment is perpetually continued. Moreover, only just so much water is supplied as is absolutely needful to preserve life. The main root thus becomes bent and the lateral roots develop neither quickly enough nor profusely enough for vigorous growth, and all the processes of life are very greatly retarded. The roots are never cut off, and through their gradual elevation the whole plant is sometimes raised on what looks like a system of aërial roots.

Again, the twigs are early bent, so that they cross one another, or the stem, in abrupt or zigzag ways, Bamboo-fibres being used to bind them temporarily in place. Thus all growth which does take place is kept within dwarf dimensions, so that the stem, after fifty or one hundred years of life, is often but from an inch and a half to three inches in diameter and about ten times as high. If a bent twig dies it is cut off, and the new one which springs from below it is forced to take its place. This sometimes produces the look of a graft. Frequently a piece of Fern-stem or a bit of tufa or coral is so placed that the main stem bends around it. If all the twisted branches die, new ones are then grafted on the old stock. Conifers bear this sort of treatment much better than dicotyledonous plants, as the tendency of these to throw out side shoots can tire the patience even of Japanese gardeners. For no detail of free growth out of harmony with the forms of the main branches can be allowed. Every smallest twig must scrupulously accommodate itself to the general effect. *Thuyopsis dolobrata*, *Chamæcyparis obtusa*, *Pinus parviflora* and *P. densifolia* are among the conifers most commonly chosen for dwarfing. Some of those exhibited in Paris were nearly 150 years old, and were valued at hundreds of dollars. They tempted the purse of many observers, but I doubt whether any one was rash enough to buy, for it was plain that their value depended on a continuance of the Japanese cultivator's skill—they might as well die at once as live to lose their character through unregulated growth.

What now was the artistic interest of these specimens? Sometimes it was merely the charm that lies in anything quaint, bizarre, grotesque. But often we saw forms so beautiful in their way and so clearly illustrative of one phase of Japanese artistic endeavor that it was a pure delight to study them. Often these little trees were not bizarre and patently deformed, but as fine in their outlines, as grand in their masses, as imposing in their effect, as suggestive of ideas of long existence and vigorous development, as could be the most mighty specimen seen out-of-doors. It needed a little effort to put one's self at the right point of view. But it soon was easy to look at them as the Japanese himself must look—to consider them as miniature representations which the eye knew to be small, but the imagination accepted as large—that is, it was soon easy to look at them as we look at little pictures or at statuettes. If a reproduction of a large form on canvas can satisfy eye and mind, although it measures but a few inches itself, why cannot one be likewise accepted when wrought in the same material as the original? Here was a portrait, so to say, of a great Thuyopsis or Pine, which, in a pot scarce twelve inches across, we could have perpetually at hand not merely to suggest, but actually to show, the beauty of its original. Here in portable shape we had form, color, substance, movement, odor—everything but size; and when we had learned how to look we missed size even less than in one of Barye's tigers or in a miniature of a familiar face. The best of these little trees were not mere curiosities, but true works of art. If simply kept small they would have been the former; but kept small and looking gigantic, they were artistic in intention and result. Of course such an effect could be produced only by the twisting processes employed. Mere retardation of development would not answer. If we could keep a six-year-old White Pine forever of the same size and shape it would never look like a century-old one. It must be forced to take a shape characteristic of maturity. Nor does it matter, I think, whether or not the shape achieved is precisely that of a freely-developed individual of the same species. So long as the dwarfed tree looks as though a freely-grown large one might have assumed this shape, the artistic ideal is achieved.

But still more interesting than these isolated dwarfs were certain arrangements where a number had been grown together. Several creations of this sort had been brought to Paris, but so far as I saw, only one remained in perfect condition. This was exhibited in August at one of the flower shows in the great tent, and may have been noticed there even by visitors who did not penetrate the Japanese section. It consisted of a board about as big as a tea-tray with a raised rim around the back and sides. At the right hand back corner was a thick irregular group of conifers, some eighteen inches in height, massed around a large stone. So carefully had the shape of this stone been chosen and the shape and arrangement of the plants been studied that the effect was precisely the same as though we saw a great precipitous rock surrounded by graceful yet imposing trees of natural size. A lower mass of foliage formed the centre of the background,

and to the left was another higher mass of conifers interspersed with deciduous trees, seen beyond a lofty bridge. The foreground was composed of moss and low grasses broken by taller tufts and by patches of a tiny flowering plant—as I remember, an Oxalis—and foreground and background were united by plants of intermediate sizes in the most thoroughly artistic way. The horticultural skill displayed was marvelous; for not only the trees but the grasses and everything else must have been dwarfed to bring them to such fairy-like proportions, an inch counting for a considerable elevation, and the flowers being no bigger than pin-heads, yet each and every plant being in perfect condition, and the general effect luxuriant and rich. It was not a little toy-shop garden—it was a little living picture of a broad landscape of incomparable beauty and grandeur. If one took a moment to get absorbed in the scene before him, he thought no more of dimensions than if he had been looking at painted canvas. What he saw was a shadowy glen where rich green grass was starred with yellow flowers, where coolness and freshness breathed from the air, and in the background great masses of rock and foliage that stirred the imagination as well as refreshed the eye. The marvelous skill of the horticulturist was forgotten in wonder at the power of the artist who could conceive so beautiful a landscape. The way in which foreground, middle distance and background had been contrasted yet harmonized, the grandeur yet softness of the massing, the loveliness of the sky-line, the variety and beauty of the color, all kept in a low, quiet tone with no crude notes—these merits impressed one as in the work of some great painter; and what a painter would have supplied in the way of atmosphere and perspective was added by the modeling and shadowing of Nature herself. Of course the result had not the suggested poetry that we find in a Corot; nor could such a living picture on a board ever give effects of distance or supply the canopy of heaven. But within the limits possible to such work, there seemed nothing that the Japanese artist had not accomplished. As a "realistic" picture of a rocky glen no painter could begin to equal it, for it was as perfect to the tiniest detail as it was in the effect of its largest masses. In short, if on the soil the Japanese landscape-gardener had shown us nothing, here he showed us something in which we could read an account of his larger enterprises.

There was nothing I saw in all the Paris Exhibition that I coveted as I did this exquisite, and, to my eyes, novel work of art. But if it would have been rash to think a single dwarfed tree might survive in European hands, how should one dare to touch this far more complex bit of art-created life? It seemed a pure marvel that it had been brought half way round the world even by those competent to care for it at home.

New Brunswick, N. J. *George Cumming.*

Some Old American Country-Seats.—V.

MONTGOMERY PLACE.

JANET LIVINGSTON, a sister of the Chancellor, grew up in the quiet elegance of Clermont, but after her gallant young husband, General Richard Montgomery, was killed at Quebec, she chose and purchased for her home a tract of three hundred acres lying upon the river by the mouth of the Saw Kill and a few miles south of the southern limits of Clermont Manor. Here, with the help of plans which are said to have been sent from Ireland by Montgomery's sister, a Lady Ranelagh, a mansion remarkable for its simple but elegant architecture was built, and the new seat was named Montgomery Place. Here in later years the eminent jurist, Edward Livingston, was wont to retire from the cares of office to enjoy the beauties of nature.

Approaching the estate to-day from Rhinebeck or from Red Hook, the way lies through a charming farming country crossed by numerous lane-like roads and by the one highway which leads to Albany. The approach to the house at Montgomery Place parts from the high-road at right angles, and leads, at first straight, toward the river through an avenue of noble trees of various sorts, planted in rows, yet not in pairs. Indeed, not only is there no precise symmetry, but a giant Locust may here be seen standing opposite a Linden (as in the picture on page 143), or a great Horse-chestnut opposite a Beech; and in one place, where the road is carried on a stone-walled causeway over a little gully, great Willows throw large limbs across the vista. Beyond the rows of trees, on either hand, lie gently undulating pasture-lands, bounded in the distance by woods. Drawing nearer now to the house, the straight avenue ends just as the roadway passes through a tall hedge into the inner park. Here is a wood of fine forest-trees standing well apart, and, as the road curves gently to the right between the trees, a little valley on the left begins to fall away quite rapidly toward the Hudson. The sides of this valley are richly wooded, and serve to frame a first glimpse of the river, where it is disclosed by the broadening of the valley's mouth. As the road swings still farther to the right, the house comes into view ahead, and branch roads lead on the left to the stable, and to the kitchen yard, which is concealed by shrubbery and by being sunk to the basement level at the southern end of the house. The main road ends with an ample turn, placed symmetrically before the semi-circular portico which marks the entrance. The guest of the house who turns here looks eastward back toward the Albany road across a gently rising lawn bounded, on one hand, by the same dense wood which he before saw limiting the northern pasture, and, on the other, by the more open groves through which he has just traveled. Formerly this sheltered open ground contained the flower-garden and an elaborate conservatory; and, on the gentle rise behind this structure, a considerable arboretum once existed, where now only a few scattered specimens are to be seen; but from the point of view of design and general effect the substitution of the existing simple but well framed lawn in place of the old garden and conservatory is by no means to be regretted. The entrance front of the house as it now appears, when viewed from the site of the conservatory, may be seen in the picture on page 142; but though the building and the great Locusts near the porch are well shown, the picture gives no hint of the blue distance of hills and mountains which in reality appears through the tree-trunks just north of the house.

If, tempted by this glimpse of distance, the visitor turns the corner of the building and steps into the round-arched pavilion which is attached to the north side of the house, the whole broad panorama of the river and the Catskills is spread before him to the westward; but even here the wide prospect is broken into scenes and framed by the solid piers and arches of the pavilion itself, and by the trunks and branches of great trees, chiefly Locusts, standing on the brink of the irregular grassy slope which falls steeply to a narrow wood on the bluff at the river's edge. "To attempt to describe the scenery which bewitches the eye as it wanders over the wide expanse to the west from this pavilion would be an idle effort," wrote Mr. Downing in 1847. "As a foreground, imagine a large lawn waving in undulations of soft verdure, varied with fine groups, and margined with rich belts of foliage. Its base is washed by the river, which is here a broad sheet of water, lying like a long lake beneath the eye. . . . On the opposite shores, more than a mile distant, is seen a rich mingling of woods and corn-fields. But the crowning glory of the landscape is the background of mountains. The Kaatskills, as seen from this part of the Hudson, are, it seems to us, more beautiful than any mountain scenery in the Middle States. It is not merely that their outline is bold, and that the summit of Roundtop, rising three thousand feet above the surrounding country, gives an air of more grandeur than is usually seen even in the Highlands; but it is the color which renders the Kaatskills so captivating a feature in the landscape here. . . . Morning and noon the shade only varies from softer to deeper blue. But the hour of sunset is the magical time for the fantasies of the color-genii of these mountains. Seen at this period, from the terrace of the pavilion of Montgomery Place, the eye is filled with wonder at the various dyes that bathe the receding hills—the most distant of which are twenty or thirty miles away. . . . It is a spectacle of rare beauty, and he who loves tones of color, soft and dreamy as one of the mystical airs of a German maestro, should see the sunset fade into twilight from the seats on this part of the Hudson."

Mr. Downing did well to sing the praises of the Catskill sunsets, and he might have added that this favored pavilion of Montgomery Place spreads its prospects before the visitor to the delightful accompaniment of the music of waterfalls sounding from the depths of the wood near by. Upon entering this wood it is seen to occupy a large and long valley curiously broken into lesser ravines and hollows. Numerous paths lead through the dark shadows of the wood to all the finest parts and to the falls—one of them forty feet high—by which the Saw Kill plunges down to join the Hudson. Here are wildness and extreme picturesqueness in sharp contrast with the stately breadth and quietness of the lawns and groves about the house and the majestic panorama of the river. Well may Mr. Downing have called Montgomery Place second to no seat in America for its combinations of attractions; and it may be added that its makers and owners—all of them Livingstons, or close connections of the family—have been second to none in the taste and skill which took advantage of glorious opportunities and in the care which has preserved the essential features of the original design until this day.

Boston. *Charles Eliot.*

Vegetation in Southern Alabama.

THE first frost of the last winter appeared here on the 26th of November, and two lighter ones followed on the first two days of December. These chilly mornings scorched the foliage of tender tropical plants which were yet unhoused, but the vitality of the stems remained unimpaired. The Cestrums, Brugmansias, Hibiscus, Lantanas and Abutilons soon recovered and continued to bloom. Bananas, Caladiums, Hedychiums and Cannas quickly threw out new leaves, and now, on the first of March, are clothed with fresh young foliage. Aloes, Dracænas, tender Yuccas, Palms, *Cycas revoluta* and the various Cactuses are thriving luxuriantly in the open air, while Geraniums, Begonias, Amaryllis and a few tender Amazon Lilies (*Eucharis Amazonica*) have been flowering all winter long. Those exotic woody plants regarded as hardy here never showed greater luxuriance. The Camellias produced a remarkably abundant crop of flowers. The hybrid Azaleas have been blooming now for nearly three months. Chinese Magnolias, Forsythias, Siberian Honeysuckles, *Photinia serrata*, Laurestinus and Daphne, with the Dutch bulbs, began to bloom on the first week of the new year and were quickly succeeded by *Magnolia fuscata*, Wistaria, and a profusion of Tea Roses, like Marechal Neil, Lamarck, Malmaison, Cloth of Gold, Sombreuil, and that everlasting bloomer, Archduke Charles, not to speak of the variety of herbaceous annuals and perennials which are now more than five weeks in advance of ordinary seasons.

In the last half of February car loads of Cabbages of the finest quality were shipped to northern markets. Irish Potatoes are now eight inches above ground, and the earliest varieties already show signs of bloom, and Strawberries are abundant. No one has ever seen the Japanese Medlars (*Eriobotrya Japonica*) bending under heavier loads of fruit, and no object could be more attractive to the eye than these trees now are with their golden fruits nestling among the dark green foliage. This tree is a prime favorite on the Gulf Coast, where, in warm, light loam, it finds a suitable soil and proves perfectly hardy. Seedlings spring up wherever the seed is accidentally dropped in raw soil, and such volunteers grow vigorously without cultivation and can be transplanted at almost any time of the year. The fragrant flowers of this tree open late in October and last nearly a month, and it is only in winters when there are long periods of cold, wet weather that it fails to produce fruit. The juice of the Medlar has a mild acid taste and an agreeable flavor, but it is not regarded as suitable for transportation to distant markets. It is my experience, however, that clusters freed from all defective fruit and packed in sawdust will carry without injury.

For the first time in ten years the Sweet Orange gives promise by its profusion of bloom of a full crop. The trees now coming into bearing are mainly those which sprouted from trees cut down by the freezing weather in the winter of 1880–'81. During the decade preceding the one just passed the orange crop was looked upon as the most remunerative one which could be grown in localities suitable for it. Some groves of small extent, on the shores of Mobile Bay, yielded an income of many thousand dollars a year, and therefore the cultivation of the Orange up to the disastrous winter was actively carried on. The fruit produced here, the Creole Orange of Louisiana and Mississippi Sound, leaves little to be desired in quality. Large, thin skinned, fair, finely colored, rich in flavor, with tender flesh and abundant juice which blends acidity with sweetness, all these qualities render it agreeable to taste, and superior to the fruit from tropical countries. According to the testimony of old settlers the cultivation of the Orange must have been more successfully carried on by the generation preceding the present than it now is. The reason, perhaps, is that years of destructive cold appeared at longer intervals. A frost in 1852 killed the orchards, as it did in 1880. The plantations that started anew from sprouts received a check during the winter of 1884, from which the trees mostly recovered and yielded crops up to 1880. It is to be hoped that since these freezing periods are so rare some means may be devised for protecting the orchards on these special occasions, now that we can be forewarned of the advance of cold waves by the Signal Office.

Turning to the woodlands, we find the deciduous trees and those with half persistent foliage, like the entire leaved Oaks, rapidly unfolding their leaves. The Cuban Pine has already shed its pollen. The Mock Orange (*Prunus Caroliniana*) has also bloomed; and so has the Ti-Ti (*Cliftonia ligustrina*). The Dogwood, Plums and Sparkle-berries (*Vaccinium arboreum*), the American Olive, Sweet Illicium and Haws are opening their flowers. The Mulberryand May Haw (*Cratægus æstivalis*) begin to ripen their fruits. The Loblolly Pine and Long Leaved Pine are unfolding their catkins weeks in advance of ordinary seasons. The Cherokee Rose is brightening up the wood borders and hedgerows with its flowers, while the yellow Jessamine, the Woodbine, the Cross Vine, the China-tree (*Melia azedarach*) and the Pomegranate are all in full bloom.

Carl Mohr.

Mobile, Ala.

Foreign Correspondence.

London Letter.

Disease of Orchids.—Some alarm has arisen amongst Orchid growers here in consequence of the appearance amongst Cattleyas of a very virulent and invariably fatal disease, the exact nature of which has not yet been determined. Some microscopists declare that there are clear evidences that the disease is caused by a Peronospora; others, on the contrary, are equally certain that the disease is not due to any fungus whatever, although a fungus may easily follow on the heels of the disease and be mistaken for the cause. About a year and a half ago a perfectly healthy plant of the autumn-flowering *Cattleya labiata* at Kew suddenly turned black and pulpy, as if it had been boiled. We were unable to account for this; no other Cattleya was attacked, nor have any been lost in the same way since. Examples of the same disease on *C. Hardyana, C. gigas, C. Dowiana* and *C. labiata* have been received at Kew within the last twelve months from expert cultivators, who were puzzled by the sudden collapse of plants which, until the disease appeared, were in perfect health. The whole of the material is in the hands of Professor Marshall Ward, whose report is anxiously looked forward to by hundreds, who are naturally dismayed by the ravages of this disease. Meanwhile it is interesting to note that an eminent fungologist at Kew experimented with the disease by inoculating a healthy plant and smearing another plant, also healthy, with some of the diseased tissue, the result being that whilst the inoculated plant turned black and rotted in three days, that which had been smeared remained apparently uninfected. The result of this experiment makes the disease, if not fungoid, still more mysterious. In one case reported to the Kew authorities there were two distinct plants of *C. gigas* growing side by side in the same pot, or what is known as a "made-up specimen," and whilst one of these was killed by the disease, the other remained uninjured, and is alive still. This disease must not be confounded with ordinary "spot," to which all Orchids are liable under certain conditions. At the last meeting of the Royal Horticultural Society specimens of Orchids affected with the first described malady were exhibited by a gardener, who was "anxious to know if there was any remedy, as he feared his collection was in danger of being destroyed." I do not believe there is any occasion for so much alarm, more especially after hearing from Professor Ward that the disease is not caused by a fungus.

London Fogs.—Some time ago I mentioned the difficulties experienced by cultivators in the neighborhood of London owing to the frequency and poisonous nature of fogs in winter. The subject has since been taken up by the Royal Horticultural Society, with the result that the evidence collected shows the matter to be of so much importance that a government grant of £100 has been applied for to facilitate the investigation of the subject by chemists and physiologists. The present winter has been comparatively free from the black, or rather copper-colored, fogs, which during last winter did frightful injury to in-door plants of all kinds. We have a Smoke-abatement Society in London, but it does not appear to have any influence in the reduction of the smoke nuisance.

Weather.—We are experiencing now much colder weather than we had all through January. This morning, the 28th of February, the thermometer registered eight degrees of frost, with a cold east wind and snow falling. We have reason to feel grateful for this timely check to vegetation, which a month ago was so forward as to cause alarm for the safety of fruit and out-door plants generally. Notwithstanding the cold, the lawns have lately been bright with thousands of yellow Crocuses, Snowdrops, Winter Aconites and blue Squills. The effect produced at this time of year by these plants when set in thousands on sloping lawns is particularly good. Apparently they become established, for this is their fourth year on the lawns at Kew.

Moth-Traps.—At a recent meeting of the British Fruit Growers' Association, Mr. T. W. Beach, who grows fruit very largely and is one of the principal jam-manufacturers in England, exhibited an excellent contrivance for trapping moths, etc., which infest fruit-trees. The trap is simply an

ordinary petroleum lamp, furnished with an extremely wide shade, the under surface of which is white, and covered with a mixture of grease and tar or any sticky substance. The moths are attracted by the light, and in flying about it they come in contact with and are held by the adhesive mixture. This simple but first-rate contrivance has been tried in several orchards with much success. To catch the enemy before it has sown the seeds of mischief is certainly a much more sensible way than to fight with the mischief itself.

TRADE-UNIONISM FOR GARDENERS.—The improved position of the followers of many trades and professions in England which has resulted from combination, has set gardeners to thinking whether something of the same kind could not be done by a union of a similar kind amongst themselves. The scheme propounded by the first to move in this matter is, briefly stated, an association for all professional gardeners; a registry of places and men; the boycotting of all who are not members of the association; the issue of certificates to all qualified gardeners, and the limitation of apprentices with a view to relieving the present very congested condition of the horticultural labor market. Whilst it is felt that, considering the nature of the training a man must undergo before he becomes a competent gardener, he is, as a rule, very badly paid, it is clear that so long as there are twice as many men as there are situations for them, there is small chance of a rise in gardeners' wages. There is small prospect, therefore, that the movement will prove very helpful. England is admittedly the best training ground for horticulture, and we are committed to free trade in labor as well as in everything else. Combination or a "strike" amongst gardeners would probably result in a loss to themselves, as horticulture is very much of a luxury, and a man cannot be compelled to pay more than he chooses for his luxuries. With the nurserymen it is different, and consequently nurserymen pay their permanent staff well, as they are bound to do. Meanwhile it is a curious commentary on the complaints of the gentleman's gardener that whilst he cannot command satisfactory wages, employers are at their wits' end to find competent men. Only this week I have been informed of three first-rate situations for Orchid-growers for which suitable men were not forthcoming. *W. Watson.*

London.

Berlin Letter.

GERMANY is the land of societies, and it is no wonder, therefore, that at the capital of the Empire there are not only one or two, but half a dozen horticultural societies. The oldest and most important one of these is the Society for the Advancement of Horticulture in the Royal Prussian States. Its members are gardeners, amateurs and many botanists. It is the society which is now attracting general attention, from the fact that under its direction is to be held the great International Horticultural Fair, of which I wrote you in a former letter, and in which the decorative features of horticulture are to have the leading place.

Another old society, which is held in high esteem, is the Berlin Horticultural Society; its members are mainly nurserymen in the vicinity of the city. Then there are a Gardeners' Society, a Society of Commercial Florists, a Society of Fruit-growers, and a Society of Graduates of the Pomological Institute at Proskau. The gardeners of Berlin make a great deal of society life, but the activity of this life is confined mainly to the winter months, because in summer, work, in most of the nurseries, begins at four or five o'clock in the morning and ends at eight or nine in the evening. The number of nurseries where the work begins at six or ends as early as seven is very small. It is little wonder, then, that society life drags in the summer season.

The Society for the Advancement of Horticulture has monthly meetings, at which prizes are offered for special plants and discussions are held on subjects connected with them. Prizes were offered for groups of ten Amaryllis at the January meeting. Of three competitors, the head-gardener of the famous garden of the late Mr. Borsig gained the first prize, which was a large silver medal. His specimens were so vigorous, the flowers were so large and the colors so brilliant that they might well compete with the best English plants. The cultivator said that pot-culture was best for these bulbs. He transplants them but once during their period of vegetation, and thus gets strong bulbs, each of which bears two scapes with a pair of flowers. The second competitor showed seedling Amaryllis, and his practice is to plant the young bulbs out, whilst strong bulbs are cultivated in pots, plunged in warm soil four inches below the surface. Then the roots grow over the rim of the pot, and no further transplanting is needed. A variety of *Clematis patens*, called Vesta and trained in balloon form, was exhibited at the same meeting. This beautiful white flowering plant was greatly praised by its exhibitor for winter bloom and cut flowers. Another good winter blooming plant shown was the new *Iris Bornmuelleri*, with yellow flowers. It was sent to the exhibitor by a collector in Persia, and it flowered in a cold frame in the middle of January. *Anemone blanda* was also shown and highly commended, because it had flowered in the open air in the last week of January along with Christmas Roses and *Eranthis hyemalis*. This, indeed, may be our earliest spring flower in the open air. Eranthis is flowering freely in the botanical gardens here, although the temperature fell below zero last week.

Specimens of *Lilium auratum* in flower attracted much attention. The bulbs are placed in an ice-cellar immediately on their receipt in autumn, where they are kept until needed for forcing. They are at once brought into a house with a temperature of from fifty-nine to sixty-four degrees Fahrenheit, when good sized bulbs will show four or five flowers in four weeks. The flowers are highly appreciated here in the winter months, and they are quite often seen in the flower-shops this winter. It has been supposed that they were imported from the Riviera like Roses, but this exhibitor said that other florists as well as himself raised many of them here.

The beautiful *Tulipa Greigi*, from Turkistan, is another flower which had been forced for exhibition. It began to bloom about the 20th of January and lasted for a long time. It was remarked, however, that the colors of the flower were not as brilliant nor the marking of the leaves as decided as when they were grown in the open air. It was stated that this Tulip, unlike most others, does not thrive well in a sandy soil, but needs a strong one, which does not thoroughly dry out in the summer-time. Deep planting is also necessary for its best development. One member stated that Tulips and Lilies gave the best seed when the scapes are cut and put in water to ripen. Under these circumstances the reserved nutrition is used for the development of seeds, while in the other case, where the scape remains on the plant, the reserved nutrition is carried downward to be stored in bulb. The question is one of sufficient interest to demand investigation, as was another made at this meeting, to the effect that in England some growers of Chrysanthemum-seed cut off the flowers and place them in water, thinking that in this way they get better seed.

Berlin. *Udo Dammer.*

Cultural Department.

Notes on Strawberry Culture.

THIS year's fruit catalogues contain florid descriptions of many new and apparently desirable varieties of Strawberries, and it is quite perplexing to find that each one of these varieties is claimed to be of better quality than any other one. For many years I have been buying "the very finest of Strawberries." I have tested about twenty-five sorts, with a hope of reaching some day the climax of perfection, yet I sometimes doubt whether any Strawberry has yet been found which is better than the old Wilson's Seedling.

However, the Wilson seems to be declining in southern New Jersey, and I have now supplanted it with a sort which, with me, does better, known as the Pearl. This variety, as it grows here, is remarkably well rooted, of vigorous habit and of as good quality as any I have tried.

The quality of a Strawberry depends much on the soil in which it is grown, how the plant is manured and the weather under which the fruit ripens. Varieties which are excellent when grown under conditions favoring them, are comparatively worthless when these conditions fail. It is generally thought that the Strawberry requires high culture and fertilization with stable manure; yet this treatment will harm the quality of any variety of Strawberries. I have found Strawberries to do best on a fairly fertile soil, and fed with potash and lime, with no nitrogenous manures. If the plant be richly fed with nitrogen its fruit will be soft, flavorless and prone to decay. If treated with potash and lime it will be sweet and durable.

I once had a patch of Strawberries on new land which had not been manured. In the winter I top-dressed the field liberally with water-slaked shell-lime, spreading this on the rows so as almost to cover and hide the plants. A neighbor had a Strawberry-patch of like age and of the same variety—the Wilson. His land was freely fertilized with stable manure. One hot day I picked 400 quarts of strawberries and shipped them to Boston. On the same day my neighbor did likewise. My fruit reached Boston in good order and sold for a high price.

My neighbor's fruit reached there the same day, soft and unsalable. It did not bring enough to pay the freight. The difference in these berries was due simply to the differing effect of the stable manure and the lime. The same day that I sent these berries to Boston I sent a thirty-two-quart crate of them to friends in Kittery, Maine. This crate was on the road a day longer. The berries in it were selected, the largest and ripest, mostly dead ripe, yet these berries arrived in perfectly good condition, and my friends wrote that they were the finest they had seen.

The Wilson Strawberry, grown with potash and lime, and left to become dead ripe, is hard to beat, either for market or for the table; but nitrogenous manure will spoil it. It may increase the size of the berry, but it will be at the expense of sweetness and solidity. There need be no fear that liming the Strawberry-plant will injure it. Living vegetation is not harmed by the contact of water-slaked lime, though it will help decompose dead vegetable matter. I have covered Strawberry-plants two inches deep with slaked lime, and seen the plants grow up through it.

The Strawberry blight (*Sphærella Fragariæ*) may be prevented by a free and timely use of lime. All our varieties are more or less liable to harm from this fungus, which manifests itself in small purple or red spots on the leaf. As these spots increase in size they become a reddish brown, with a white spot in the centre. The leaves badly diseased turn brown, die and shrivel. This will be noticed especially where the fungus has attacked the petiole. Then the leaf will soon wither, though it may not be spotted. The fungus often invades the fruit-stems or the calyx. When this happens the growth of the berry is stopped. Moist and poorly drained soils and damp and "muggy" weather favor its rapid development. Years ago I had an acre of Crescents, carrying a heavy crop. When the berries were about one-third grown the field was struck by this blight, which swept over it like a conflagration. Not a berry ripened, and in the course of two weeks one could hardly find a green leaf in the whole acre. The plants died utterly.

Such complete destruction by this fungus is unusual; commonly only the leaves perish, and a new growth starts from the root-crown. This growth will in its turn become diseased from the fungus-spores which pervade the tissues they have destroyed. In these the spores of the fungus hibernate, and hatch with return of warmth and moisture in the spring.

I do not know whether lime will destroy the hibernating germs of this fungus, but from sundry experiences in its application I am disposed to think it will. However, it is known that lime prevents the germination of the summer spores of blight by which the disease is most rapidly spread. It is well to give the Strawberry-plants a liberal coat of lime in winter or early spring, and repeated lighter doses of dry lime before and after blossoming until the fruit is about one-third grown, when the crop will be reasonably safe and the liming should cease or there will be risk of disfiguring the fruit should there be no rain to wash off the lime. The lighter applications of lime may be conveniently made with a bellows. It is only requisite to make a slight, but thorough, distribution of the dry powder over the entire surface of the plant. If the lime be on the leaf when the fungus germs alight on it they can do no harm. If the germs reach the leaf before the lime does, they will germinate and enter the tissues, and then the lime cannot affect them. The treatment of Strawberry blight can be preventive only.

Spraying the plants with a solution of hyposulphite of soda, one pound to ten gallons of water, is also preventive of blight. So is a solution of sulphide of potassium, one pound to forty gallons of water. The various formulated solutions of copper sulphate or carbonate are also preventive, but it must be remembered that all these chemicals are useful only as preventives of disease. The defense must interpose before the

Montgomery Place: Entrance Front.—See page 139.

attack arrives. Another preventive of blight is to burn over the berry patch. This destroys the seed of the infection. But the weather may prevent the doing of this at the proper time. In place of fire I use sulphuric acid, which acts like liquid fire. Spraying with a solution of one quart of the acid in twenty gallons of water will completely burn the vegetation and the fungus, and this can be done when convenient, regardless of the weather. I thus burned some rows of blight-infected plants in June, 1889. The new growth from the root-crowns remains healthy. I shall, however, again spray them with this burning fluid before the growth starts this spring, after which I expect to see no more of *Sphærella Fragariæ* on these plants this season. This treatment is not expensive. The material will cost about fifty cents, and one may spray an acre of plants in an hour and a half.

It is well to avoid damage from this blight by restricting Strawberry-plants to one crop. Make new plantations yearly. An acre of Strawberries may be planted almost as readily as an acre of corn. With ground in good order in April, mark it off three feet each way. Have the plants ready with roots straightened out and puddled. Use a broad bitted turfing hoe. At the intersections of the rows strike this hoe into the soil at an angle of say forty-five degrees. Depress the hoe handle. This will open a gap in the soil beneath its blade. A man with basket of plants takes one of these, shakes its roots apart, and sticks them into the opening made by the hoe, so the crown of plant will be level with surface of the ground. The hoe is then withdrawn, the gap it made closes on the roots, the man with the hoe sets his foot on the plant, firming it in the soil, and proceeds to the next hill.

This seems a rough operation, but last April two men thus set an acre of five thousand plants in a half day. Two weeks after setting the rows were cultivated both ways with a diamond toothed cultivator, then once hoed, some twenty plants reset, and afterward twice cultivated, one way only, leaving the plants in matted rows, which are matted enough. Three feet apart in a row is close enough to plant the Pearl, which is a strong runner. Even at four feet the rows will fill up with plants.

In December, 1889, this acre of Pearls was top dressed with two tons of Canada unleached ashes and a hundred bushels of lime. Next June I expect to harvest from it a healthy crop of berries which will bear transport to Canada.

When this crop is off the Strawberry sod will be plowed under and planted on the first of July to white Peach-blow Potatoes, fertilized with a ton per acre of "potato manure." Next year the ground may be again planted with Strawberries, which will be again manured with unleached ashes and lime.

Vineland, N. J. *A. W. Pearson.*

Montgomery Place: An Avenue.—See page 139.

Winter Notes on Trees and Shrubs.

THE general appearance of the stems and branches of deciduous trees and shrubs in our woods and gardens in winter is often of a very varied character and sometimes strikingly beautiful. The many pendulous, pyramidal and other so-called varieties of trees, which have been diligently propagated by nurserymen, are not more interesting than the diversity of forms to be met with in the fields, or more rarely in our open native woods. But when we regard the beautiful harmonies and contrasts of color of trunks and branches, occasionally produced in nature in what seems a haphazard way, the wonder is that effects of this kind have not been more extensively attempted in ornamental planting. The form of the trunk and the position and angle assumed by the bare branches of trees do not appeal to the eye of most people as do the colors of the bark, which, in many cases, cannot fail to attract the attention of even the least observing.

This is shown by the prominence given in many small gardens to the white-stemmed Birches, which Coleridge, referring to the European species, called the

> —— "most beautiful
> Of forest trees, the Lady of the woods."

In a great proportion of the species of our large growing trees, such as the Oaks, Ashes, Elms and Maples, the old and dead bark usually has a more or less brown or sombre gray appearance, except where vitality and color is given by mosses, lichens or other low forms of vegetable life upon it. The older parts of some species of Poplar are light in color; other trees, like some of the Beeches, have uniformly smooth trunks, and still others have the curiously blotched appearance of our Buttonwood-tree. A very few trees have stems whose bark retains some striking peculiarity of color after it has become inert and apparently of no vital use to the tree, but nearly all show green or some brighter color in the younger branches.

Of the White Birches, already referred to, a common one in New England gardens is the native *Betula populifolia*, which never becomes a wide-spreading tree or more than thirty or forty feet high. In the poor soils in which it is most often found it usually occurs in thickets and shrub-like clumps. Planted against a dark or evergreen background it is certainly conspicuous, with its white stems and dark green, slender branchlets. Of weeping and other forms of White Birches propagated by nurserymen, those of the European species (*B. alba*) are the most common, and, it may be added, generally the most interesting and graceful.

A much more beautiful tree in every respect is the Canoe Birch (*B. papyrifera*), and it is perhaps never so strikingly attractive as when its large, shining, pure white trunk is seen mixed with the dark hued stems of other trees in its native woods. Where it has room to develop it sometimes becomes a beautiful, broad-spreading tree whose coppery bronze colored branchlets form a curious contrast with the dazzling whiteness of the older bark. Few deciduous trees have a greater charm than this when leafless, but, like its other white stemmed congeners, its beauty is best shown by contrast. One other species is conspicuous in the woods in winter, the Yellow Birch (*B. lutea*) having its trunk covered with loose, thin, curling flakes of silvery or yellow bark. The charm of this is lost when the tree is growing in exposed situations, as the bark then becomes dull-colored or weather-beaten.

Next to the Birches some of the Willows attract attention by the yellow, red or bright green of their branches, the colors of which deepen with the coming of mild days in late winter and early spring. A few shrubby species are particularly showy, both by the color of their bark and the half developed catkins which they bear. One of the most pleasing, as well as one of the most rare, native species is *Salix balsamifera*, of the White Mountains, and further northward, which has clean, glossy russet, yellowish brown branches, and reddish buds.

Among all our hardy trees, there are none which in color possess more delicately pretty stems and branches than the small Striped Maple (*Acer Pennsylvanicum*) of our northern woods. Without having the glaring prominence of the White Birch, the beautiful striated bluish white and green or brown marking of the smooth bark of this tree at all seasons makes it a desirable one for any lawn. Good specimens are rarely seen in cultivation, but when well grown they are trim and ornamental little trees. Some other Maples may have more brightly colored branchlets than this species, but they lack the peculiar charm of its stem. The same observation applies to the Lindens, some of the propagated varieties or forms of which are noted for the golden yellow, bright red or other colors of their twigs, while the bark of all the older parts becomes gray. The showy colors of the twigs of tall, upright growing trees, however, do not usually attract the eye as do those of dwarf and spreading habit, or shrubs.

Of the latter, a few species of Dogwood are certainly among the most conspicuous, and are usually planted for the color of their stems, and, in popular esteem, they occupy a place among the shrubs equal to that of the White Birch among the trees. The white-fruited Dogwood (*Cornus alba*), of Siberia, is the most conspicuous as well as the most generally cultivated, both in this country and Europe. The deep, blood-red color of its stems and branches, which becomes richer as spring approaches, makes a brilliant and striking show at any time, but is naturally most prominent when the ground is covered with snow. There are several horticultural forms known to nurserymen under the names of Sibirica, Atrosanguinea, etc., having stems of varying shades of scarlet or red, besides those with peculiarities of foliage; and, unfortunately, in many catalogues the species is given as *Cornus sanguinea*, a name properly belonging to a larger growing European species having little of interest in the color of its bark, which becomes gray when old. Next to the Siberian species our native *Cornus stolonifera* possesses the bright scarlet twigged quality in a high degree; and the branches of the Silky Cornel (*C. sericea*) have a more or less purplish hue. When judiciously planted, a selection of these and some of the dwarf Willows, besides several other shrubs with peculiar color of bark, would do much to brighten our winter landscapes. *J. G. J.*

Arnold Arboretum.

Cœlogyne cristata.

THERE are over one hundred species of Cœlogyne known to botanists, but not one of them can compare in popularity with the subject of the present note. Indeed, *Cœlogyne cristata* must be regarded not only as the finest representative of the genus to which it belongs, but also as one of the best known and most generally cultivated Orchids. Not only does it take precedence of all other Cœlogynes in these respects, but it is also interesting as being the first species upon which Dr. Lindley established the genus in 1825. Its appearance in cultivation dates from the year 1837, when it was successfully introduced from the mountains of Nepal by Dr. Wallich. It is a native of this and the surrounding regions of north-eastern India, where it has been found growing on rocks and trunks of trees at elevations varying from 5,000 to 8,000 feet above sea level. In 1841 it was first publicly exhibited by Mr. Barker, of Birmingham, to whom was awarded a silver Knightian medal at one of the spring meetings of the Horticultural Society of London.

The typical *C. cristata* is recognized by its globose or oblong pseudo-bulbs, which vary in size from a small greengage to a large hen-egg. They are produced in great masses at intervals of one, two and three inches on a strong rhizome thickly covered with imbricating, brownish scales. On the summit are borne two oblong-lanceolate leaves, nine to twelve inches long, the upper surface of which is deep green, the under surface being much paler. The pendulous or arching scapes are produced from the base, and are clothed with sheathing bracts. Each scape usually bears from five to eight flowers, measuring three to four inches across, and of the purest white color with the exception of an orange-yellow stain on the disc of the lip. The oblong sepals and petals are undulate on the margins and more or less twisted at the tips. The lip is three-lobed, with rows of erect, comb-like fringes on the orange-yellow disc. The second and fourth of these rows are much longer than the others, and form a solid, erect and more or less toothed plate in front. The column is pure white and slender, furnished on each side with a thin wing, which becomes wider toward the apex, where it forms a kind of shelter to the bluntly beaked anther. The front lobe, as in nearly all Cœlogynes, has two sunken, converging lines which almost form a triangle in the centre.

There are a few distinct varieties of this species known, chief among them being Alba or Hololeuca, which differs from the type in having absolutely pure white flowers without a stain of yellow. It usually blooms a month or six weeks later than the type. The variety Citrina, perhaps better known as Lemoniana, is characterized by having a delicate wash of lemon color on the lip instead of orange-yellow. The Chatsworth variety is noted for its strong habit, having very large pseudo-bulbs. The flowers are similar to those of the type in color, but are larger in size and have the sepals and petals less twisted. St. Albans variety, or Maxima, as it is often called, may be said to be even more robust than the Chatsworth variety, and to have somewhat larger flowers, with much less twisted sepals and petals and a broader lip.

Cœlogyne cristata is best grown in large, shallow pans, furnished with holes underneath and at the sides. Three parts of their depth should be filled with clean crocks, over which must be placed a layer of rough, fibrous peat and moss. Above this comes the mixture of rich, fibrous peat, by itself or mixed with a little loam, in which the plants will freely grow. During the spring and summer months liberal supplies of water may be given as the plants are growing, but the quantity must be diminished as the bulbs are getting mature. Then the flower-spikes begin to push forth, but it is not until nearly two or three months afterward that the handsome blooms expand. During the season of flowering—that is, in December, January and part of February—very little water need be given until the growths begin to appear again, which is usually about March. If specimen plants are required, repotting will be unnecessary until two or three years have elapsed, by which time the pseudo-bulbs will have become

much crowded, and will require thinning out. The winter temperature for this species should vary from fifty-five to sixty-five degrees, Fahr., and a few degrees more in the summer.

John Weathers.

St. Albans, Eng.

The Spring Garden.

THE earlier flowers are usually most uncertain in their time of blooming, but this season they have carried their vagaries to the extreme, and began to bloom in the first days of the new year. In planting a garden one usually has an eye to effective combinations and harmonies, and while in the early garden these pleasant pictures are often slightly disturbed because some plant fails to contribute its color at the anticipated time, I have never before known such a revolutionary change in the schedule. Snowdrops in a southern border were showing color on the first day of the year and were soon after in full flower. Owing to the comparatively low temperature there has been a succession of flowers for quite two months, and, in fact, a few lingering ones were snugly buried under the snow last week. Two months of Snowdrops means much pleasure to a lover of flowers, for those exquisitely lovely flowers, usually the first harbingers of spring, have a purity, delicacy and freshness all their own. Elwes' Snowdrop (*Galanthus Elwesi*) is the most satisfactory variety for the border, since it is very much larger in all its parts than *G. nivalis*, and slightly earlier. More conspicuous it is, too, though not at all coarse. The buds of *G. Elwesi* are comparatively shorter and more round than the elegant pointed buds of *G. nivalis*. This is an Asia Minor variety, originally found by Mr. H. J. Elwes, and, as it has become plentiful, it should have a place in every garden. No garden ever had an overstock of Snowdrops. Plant them thickly and let them alone to make nice clumps. Like many of the small spring flowers, they require time to become established in masses and effective. For the collector of curiosities there is a number of varieties of Galanthus (perhaps a dozen or so), differing more or less widely, but as many of them are so nearly alike that experts seem to have difficulty in their separation, the difference in some cases must be very fanciful. The great curiosity in the family is *Galanthus nivalis Octobrensis*, which, as its name implies, blooms in October. This variety is excessively rare.

Vieing with the Snowdrops in earliness of bloom, a little colony of *Anemone blanda* has given me great pleasure and is still showing its bright flowers with foils of charming foliage —"each spray," a friend says, "a bouquet of itself." This Anemone is also from Asia Minor, and a true winter-flower, by which I understand one that will pass unharmed when in bloom through the severest weather, a distinction I was trying to make against the Hellebores not long ago in these columns. Collected forms of *A. blanda* range in color from deep blue to white. They bloom almost as soon as they appear above ground, and they appear as soon as the surface soil is free from frost. The foliage is deeply cut and has a bronzy hue which is very attractive. Anemones are not usually happy in my garden, but this species bids fair to be as satisfactory as it is beautiful. Without doubt it should be counted a first-rate addition to the earliest blooming plants. A cheerful plant is the old Winter Aconite (*Eranthis hyemalis*), with its bright yellow flowers within their green collar. These plants gave a flush of color in February which was all too short. They are somewhat slow to become established, but are very hardy, very dwarf, and good things to tuck into the front of a crowded border, where they will be undisturbed.

J. N. Gerard.

Elizabeth, N. J.

Kohl Rabi.

THIS is a vegetable of peculiar habit of growth and a curiosity to many, as I have found when offering it for sale. The leaf of the plant resembles the leaf of the Cabbage, and it grows out of the sides and centre of an enlarged root that lies on the surface of the ground, a round mass varying in size and usually three inches in diameter. The root has the texture of a turnip, with the flavor of a cabbage. The early White Vienna is well and favorably known as a tender and rapid-growing variety; but the red or purple color is only a superficial difference, and the flesh of all varieties is nearly white, and when not overgrown very tender. When old the fibre of the root extends upwards, first on the outside and then through the heart of the vegetable; a thick rind taken off at first will remove all the fibre, but when the root is filled it is useless.

The best practice is to plant seed in succession for use, because after the bulb has begun to form the period in which it is edible is comparatively short. It is very easy to grow, and is less affected by the attacks of the cabbage-worm than other members of the Cabbage family. The seeds for the first crop should be planted about the first week in March and treated in all respects like Cabbage, setting the plants in the open ground as soon as Cabbages can be set. The growth in rich land will be rapid, and a second planting a month later will make a succession. For fall use, sow in open ground early in July. My practice is to transplant, but this is not necessary, as the plants can be thinned where they grow to about six inches apart, having the rows two feet apart. They bear transplanting and extremes of heat and cold or drought well. In fall the unused plants are taken up, and, after the leaves are cut off, are set with the root in earth in a cellar, where they will keep well into the spring months, and be as good as when harvested.

To prepare for the table a common method is to pare, cut in cubes of about an inch square, boil till tender, and then serve with drawn butter.

W. H. Bull.

Hampden County, Mass.

Symphoricarpos racemosus, var. pauciflorus.—This dwarf variety of the common Snowberry in its natural home is usually a low, diffusely branched little shrub growing on rocky banks, sometimes in the sunlight, but oftener in the shade or partly shaded situations. The flowers and fruit are neither numerous nor conspicuous, but the dense light green foliage, which seems to retain its freshness throughout the season, is quite pretty, and the plant seems to thrive in a thin and poor soil when most others would not. In its native home, where the soil is very thin, it is often no more than six inches high; but these same dwarf plants attain a height of fifteen to twenty inches in one season when transplanted into the nursery. It thrives well under cultivation, producing larger foliage and a longer growth of branches. *Shepherdia Canadensis* is another shrub more difficult to transplant than the dwarf Snowberry, but frequently growing with it. It is never so abundant, but it has many valuable qualities. The usual height of this shrub is about four feet. The flowers are diœcious, and, when not in flower or fruit, it is almost or quite impossible to distinguish the male from the female plants. The yellowish red fruit comes before autumn, and, though it remains ripe on the plants only a few days, it adds much to their beauty. The foliage, nearly smooth and green above, covered with rusty scabs underneath, is pretty on the wild plants; but when these are established in the nursery it becomes much larger and more beautiful. On the headlands of Lake Champlain this shrub is quite common, usually along the margins of half shaded cliffs overhanging the water.

F. H. Horsford.

Southwick, Mass.

Seasonable Hints.—Cold frames should be uncovered every fine day and carefully ventilated at all times, or the result will be spindling and enfeebled plants. As soon as the ground is sufficiently dry—that is, when it can be readily pulverized with spade and digging-fork—shrubs, small fruits, hardy herbaceous plants, and the whole line of dormant roots in the kitchen-garden, like Asparagus and Rhubarb, should be transplanted. When Strawberry-plants show signs of returning life, remove the mulch a little from around the crown of each plant, so as to allow the young leaves space to develop. If the bed has no mulch it will pay to apply it even now.

If the lawn was neglected last fall, a light dressing of thoroughly rotted manure, or, better still, some of the standard commercial fertilizers, should be applied. This is the time to sow nearly all the vegetable and flower seeds which should be started under glass. Tomatoes, Peppers, Egg-plants, Cabbage, Cauliflower and Lettuce should be sown in the hot-bed without delay, and three seeds each of Cucumbers and Melons should be placed in a three-inch pot, and the strongest one only allowed to develop.

Pansies may be had for late flowers by sowing seeds now, and for succession a month later. Plants may be had in this way almost as good in September as in April. They require a heavy, rich soil that retains moisture well, and when signs of exhaustion are shown they should be treated with liquid manure. A mulch of sphagnum moss, through which has been mixed a small quantity of pure bone-meal, say two pounds of the meal to one bushel of the moss, will produce abundant bloom.

Cannas should be separated and potted now. The new so-called dwarf varieties, which are really ever-blooming, are among the most effective plants of recent introduction. Tuberous Begonias are growing in favor for garden culture, and they should be started at once, as also should Gloxinias, Caladiums, Achimenes and the like.

P. O.

Bergen, N. J.

Correspondence.

Prairie Forestry.

To the Editor of Garden and Forest:

Sir.—Allow me to make a brief rejoinder to Professor Keffer's remarks in regard to forestry on the plains, in your issue of March 12th. To be sure, without tree-planting in a treeless country, there can be no forestry; yet, while trees and the planting of trees is the necessary basis for forests and for forestry, it should be now understood and urged that the planting of trees alone does not constitute forestry, and unless the work is done with a certain knowledge, and in accordance with certain principles of forestry proper, it cannot produce the results—or at least the full results—which are anticipated. It is the manner of planting which constitutes the difference between mere tree-planting and forest-planting. What we do now on the prairie in regard to forestry bears the same relation to forest-planting proper that the crude, unscientific scratching of the ground for a food-crop, by the Indian or Mexican, bears to the highly intensified methods of the New Englander or European. In a measure and in a manner results are obtained, but neither in a full measure nor in the best manner.

The first and the lasting object and leading thought of the forester is to create and maintain forest-conditions. Such conditions are afforded by dense growth, mixed growth and undergrowth, which combination alone can shade the ground effectually and continually. In order to maintain such forest-conditions it is not enough to plant densely and plant mixed growths; we must know what the component parts of our plantation will do in their further development, how they will grow up in relation to each other; how, in fact, they will keep up forest-conditions and develop into a desirable wood growth; we must plant with a foresight into the future of our plantation, if we wish to deserve the name of forest-planters. To do this we must have a knowledge of the life-history of our forest-trees, their requirements, their rate of growth and development during the various stages of their life.

I have no fear that we will not learn all this in time, but so far we know but little about forestry methods as applied to our forest-trees, and even the little knowledge we do have in this direction finds no widespread application in practice, and I must consider it unfortunate that this is so, and that tree-planting is so often considered synonymous with forestry.

I hope I have made clear my proposition—that it is the absence of forestry principles and forestry methods and not the deficiency in volume of planting which deprives our tree-planting in the west of its right to the title of forestry, although, in the end, for climatic effects, the volume alone will tell. I agree most readily with Professor Keffer that it is the enormous evaporation and dissipation of moisture, due to the unchecked winds much more than to the deficient rainfall, that makes agriculture precarious on the western plains, and hence the more need of creating extensive forests and forest-conditions in that region.

Washington, D. C. *B. E. Fernow.*

Orchids at Flatbush, Long Island.

To the Editor of Garden and Forest:

Sir.—In the neighborhood of Flatbush and Brooklyn several good collections of Orchids can now be found, and, as if to refute the notion that Orchids can only be grown in a house especially built for them, we find them in Palm and Fern houses, and growing with luxuriance in company with these plants. I lately saw a fine show of bloom in the houses of Mr. William Brown, of Flatbush. As is usual at this season, *Cattleya Trianæ* made the most striking display, with many well flowered specimens in the best condition and in several very distinct and attractive varieties. A plant of *C. Gaskelliana*, in full flower, was very noticeable, being entirely out of season, for a species whose normal period of bloom is in the months of July and August. Mr. Bennett, the gardener, states that this plant blooms regularly at this season, which makes it a valuable acquisition, and, moreover, it is deliciously fragrant. Among the Dendrobiums were some large and well flowered examples of the old, but still popular, *D. nobile*, and hanging from the roof was a fine piece of the pretty *D. Devonianum* carrying 200 flowers. Other species, such as *D. Wardianum*, *D. thyrsiflorum* and *D. fimbriatum*, were equally well flowered.

The Phalænopses in this collection are very thrifty, and many fine and well branched spikes were seen of the beautiful *P. Schilleriana;* also several good forms of *P. amabilis*, *P. Sanderiana* and *P. Stuartiana*. From the roof hung a fine piece of *Dendrochilum glumaceum*, bearing forty spikes of its fragrant blossoms, and several plants of the pretty *Oncidium sarcodes*, attached to blocks, had produced well branched spikes loaded with yellow and brown spotted flowers, and forming a delightful combination with the other occupants of the house. *Phajus Wallichii*, too, was in fine condition. *P. grandifolius* was just past flowering, after having made a grand display for several weeks.

A number of well grown Cypripediums added to the display, including, amongst others, the white flowering *C. niveum*, large plants of *C. Boxallii*, *C. villosum*, *C. hirsutissimum*, *C. Harrisianum* and *C. Stonei*. Several plants of note promise a fine show of bloom later in the season, among them being remarkable examples of the true Majus form of *Oncidium ampliatum*. This grand species is always an attractive object when in bloom, bearing great quantities of golden yellow and brown spotted flowers on its many branched stems. Several plants of *Oncidium Papilio majus* were also showing, together with *Cymbidium eburneum* and *Zygopetalum crinitum*. The Nepenthes in this collection are always worth a visit, being in fine health. Among them was a good plant of *N. Amesiana*, with several enormous pitchers; also *N. Rafflesiana*, a splendid, well furnished plant of *N. Tildeniana*, with excellent examples of *N. Dominiana*, *N. Craigiana*, *N. Hookeriana*, *N. Sheltonii*, *N. Bennetiana* and many others.

Summit, N. J. *A. Dimmock.*

Specimen Plants at Wellesley.

To the Editor of Garden and Forest:

Sir.—In the *Gardeners' Chronicle* for February 8th mention is made of a remarkable *Cymbidium eburneum* twenty years old, which produced twenty-seven flowers a year ago; and in the next issue of the same paper two plants of *C. Lowianum* are mentioned, one of which had 140 and the other 108 flowers.

It is the common opinion that there are many Orchids grown on the other side which surpass any grown here; but if every remarkable specimen in American collections was accorded a public notice we might find that the superiority of the Old World in this respect is not so marked as we had supposed. Just now in the collection of Mr. H. H. Hunnewell, at Wellesley, Massachusetts, there is a *C. eburneum* with no less than nineteen flower spikes, and one of three large plants of *C. Lowianum* shows 141 flowers, one-half of which are fully expanded. A striking plant is *Medinilla magnifica*, and one not often seen nowadays, though it is by no means new. The specimen here, a standard with a stem five feet high and a head seven feet in diameter, has thirty-three racemes of flowers, and is an object of great beauty. Perhaps these plants are worth putting on record, and it is to be hoped that other gardeners will follow with notes on some of the treasures in their charge.

Wellesley, Mass. *F. L. Harris.*

A Gardener's Problem.

To the Editor of Garden and Forest:

Sir.—Mr. Burbidge, in his letter at page 117 of the present volume, conveys the idea that Mr. Moore's treatment of *Nepenthes Rajah* may be quoted in refutation of the views of Mr. Watson; but, perhaps, Mr. Moore had better be allowed to state his own experience. In a paper on "Experiments with Manure in Orchid Culture," read before the Scottish Horticultural Association on January 7th of the present year, Mr. Moore is reported as follows: "Many experiments which have been made, and from which important results have accrued, would never have been undertaken but for the failure of some favorite plant or set of plants. A case in point is *Nepenthes Rajah;* thrice I got this plant, twice I lost it, and the third plant now flourishes. When I obtained it first I was recommended to grow it, if possible, in hot vapor, advice which was frequently repeated to me afterward; but treating it as nearly as I could to these instructions, ended in the death of the plant. On the second occasion I was recommended to grow it in cold vapor; was speciously informed that it could not fail with such treatment; that the fact had been amply demonstrated. Again I adopted the advice given, and again I lost my plant. On the third occasion I merely begged a plant, but did not beg advice; I considered long how I would treat it, my inclination leaning strongly to the hot system. Eventually, I determined to try a "betwixt and between," and brought it to the cool Orchid-house, where there was a moist atmosphere with a minimum night temperature of fifty degrees Fahrenheit. In this house it grew apace, and, what is more important, continues to grow and flourish, so that it is

now a fine, vigorous plant, each succeeding leaf being larger than that which preceded it."

I would infer from those remarks that Mr. Moore succeeded simply by following the bent of his genius, and quite independent of any knowledge he may have possessed of the Bornean climate. The experience of Mr. F. L. Ames' gardener, as reported on page 108, would also point to the minor importance of minute knowledge regarding habitat in this particular case.

Cambridge, Mass. *M. Barker.*

Native Shrubs in a Mild Winter.

To the Editor of GARDEN AND FOREST:

Sir.—Thoreau, who was a very keen observer, says, in his journal, that he does not remember to have seen the buds upon indigenous shrubs prematurely started by mild weather in winter.

This statement has been verified during the past season, so far as I have had opportunity to examine. While plants of exotic origin, such as the Japan Quince, the Syringa, European Cornels, Lilacs, Clematis, etc., have awakened to a dangerous degree under the warm sun of January and February, the native Cornels, Alders, Clematis, Virginia Creeper and others remain safely inactive—though growing sometimes side by side with the former.

This is a singular and somewhat significant fact, suggesting, perhaps, that the indigenous growths have inherited, from an ancient line of ancestry, a sense of the fickle and dangerous character of the wintry airs of New England; and that their spring openings, accordingly, are regulated by dates more than by temperatures. Does the rule hold good also among herbaceous perennials? I found *Phlox decussata*, Sedum, etc., an inch or more above ground in February, while such natives as *Trillium grandiflorum* and *Aster Novæ Angliæ* keep quietly in bed for a season yet.

It would be interesting to hear from those whose opportunities for wide observation in this particular are of more value than mine. Among the larger plants I do not find the rule applying as fully. The White Maples were allured into thrusting out their tiny and beautiful blossoms in February, and the buds of the Red Maple, American Elm, Beech and some others have been considerably swollen for some time. The Maples are always a sensitive race, however, as the sugar makers are well aware—the others mentioned are not yet, I think, sufficiently advanced to receive injury, even from zero weather.

Dorchester, Mass. *E. S. Farwell.*

The Tulip-Tree from Seed.

To the Editor of GARDEN AND FOREST:

Sir.—I wish to raise a quantity of young Tulip-trees (*Liriodendron tulipifera*), and should like to know how to proceed in order to get them from the seed. I sowed some seeds last year and not one came up.

Bucks County, Pa. *S. R.*

[As a rule, about one seed in ten of this tree will germinate, and even this limited fraction of the whole never sprouts till the second year. Mr. Jackson Dawson's plan is to take a box of good size and fill it with seed and fine sand in alternate layers, and then bury the box in a well-sheltered place, and leave it there one season. The next spring the box is lifted, the seed is taken carefully out, sown thickly in rows and covered lightly. Mr. Dawson read a paper on propagating trees and shrubs from seed at a meeting of the Massachusetts Horticultural Society on March 7th, 1885. The paper was published in pamphlet form, and it contains information of practical value to every one who wishes to raise seedling-trees or shrubs.—ED.]

Periodical Literature.

Only a few years ago references to our vanishing forests were rare in print, and were principally confined to scientific journals. But to-day one can hardly take up a newspaper or magazine without finding some insistent plea for forest-preservation, based on definite knowledge of the damage which has already been done and a lively sense of the imminent greater damage to come. An example in point is an excellent article called "The Forestry Problem," by Mr. Charles Morris, published in the February issue of *Lippincott's Magazine*. The facts it cites are chiefly drawn from the Census reports of 1880; and bad as they are, the reader would be shocked indeed had it been possible to gather data as full to-day, and to contrast the ruin of 1880 with the wider ruin of 1890. Of course the subject is too familiar to our own readers to justify an abstract of Mr. Morris' article. We need only quote one paragraph as touching upon a cause of injury which is, perhaps, less justly estimated by the public than the lumberman's axe and the camper's fire. This is the forest-browsing of animals. "It is common in the southern Atlantic States," says the writer, "and in California to turn cattle, sheep, horses and hogs into the woods to pick up there a scanty subsistence. The result is the destruction of seedling plants in immense numbers, while young trees, and often old ones, are killed by the loss of their bark. Hogs add to the ruin by rooting up the young Pines and feeding on their succulent roots. . . . At the opening of the dry season in California immense herds of cattle, horses and sheep are driven into the mountains to graze, and from the foot-hills to the highest alpine meadows not only every blade of grass, but also every seedling tree, is destroyed. The present forests await the axe, but the hopes of future forests are ruined. Nor is this all. The sharp hoofs of the sheep, winding up the steep acclivities, tread out the roots of the grasses and other perennial plants; the soil, deprived of its vegetable covering, is washed away by the rains; and not only is the possibility of future forests destroyed, but the fertile plains below are threatened with burial under the gravel and sand swept from the bare mountain-sides."

In *Harper's Magazine* for March Mr. Charles Dudley Warner humorously deplores the recent rise of the Chrysanthemum in fashionable favor, and thinks it imperative upon him to declare that it is less beautiful than the Rose, and to predict that after a while the Rose "will become again the fashion and be more passionately admired for its temporary banishment." If he had consulted facts instead of his own imagination, he would have known that, despite this vogue, there was never a time when Roses were so largely in demand as now. Chrysanthemums have not pushed them out of favor; they have merely won themselves a place which, before they came, was empty; for, as Mr. Warner might have remembered, the Chrysanthemum season is the very season when Roses are at their worst and it is most difficult to obtain them. In early summer they bloom for us out-of-doors; in winter and spring the hot-house supplies them; but in autumn what did we have before the Chrysanthemum was a favorite? Moreover, there are Chrysanthemums and Chrysanthemums, and while we often see flowers with little but size or eccentricity to recommend them, multitudes of varieties are truly beautiful in form as well as color. It is quite unjust to say in a general way that the Chrysanthemum "goes along with all the conceits and fantastic unrest of the decorative art" of the moment, and "helps out our age of plush with a flame of color." Is it not the favorite flower of the Japanese, who, above all other peoples, are remarkable for sobriety in household adornment? Of course it can be misused, but so can the Rose itself; and if any flower may be taken as an emblem of the extravagance and display which too often characterize American homes and entertainments, one could more justly cite the costly hot-house Rose, despite its sentiment and its "capacity of shyly and reluctantly unfolding its beauty," than the cheap Chrysanthemum, although it may be true that "there is nothing shame-faced or retiring about it."

Recent Plant Portraits.

Botanical Magazine for February:

PODOPHYLLUM PLEIANTHUM, *t.* 7098; a native of Formosa, and a near ally of our Mandrake or May Apple, from which it differs by its axillary flowers and isomerous stamens and petals; and is also interesting in departing from its congeners in having numerous deep purple colored flowers. *P. pleianthum* was discovered in 1881 by Mr. T. Watters, and was introduced into England from the Hong-Kong Botanic Garden in 1885 and flowered at Kew in August last year.

COTTONIA MACROSTACHYA, *t.* 7099; a small-flowered Indian Orchid of considerable botanical interest, although the flowers are not showy or of much value from a decorative point of view.

DROSERA CISTIFLORA, *t.* 7100; the most beautiful of all the cultivated Sundews, with bright scarlet flowers. It is a native of the south-west corner of south Africa, whence living plants were introduced to Kew by Miss North, the distinguished botanical artist, whose gallery of flower paintings, made in all parts of the world, is one of the chief popular attractions of the Royal Gardens.

CHIRONIA PALUSTRIS, *t.* 7101; a south African representative of the Gentias, with rosy pink flowers, and distinguished from

the other species of the genus in its strongly twisted anthers, approaching in this way the European Erythræa. It was introduced into England by seeds collected in south Africa by Mr. William Watson in 1887.

Cypripedium Rothschildianum, *l.* 7102; a native of New Guinea, whence it was imported by the Messrs. Sander & Co., of St. Albans, a few years ago. The editor, Sir Joseph Hooker, discussing the antiquity of the genus Cypripedium and the variability of individuals of the same species, takes occasion to say: "The subject of the antiquity of a genus or group of plants is a very attractive one, and far too complex to enter on here. Such antiquity, when leading to extinction, is supposed to result in fixity of type, in rarity of individuals, and in the restriction of these in area. In respect of it I may allude to the singular fact that though Cypripedium is one of the few tropical genera of Orchids that inhabit both the eastern and western hemispheres, it has not hitherto been found in Africa or Madagascar, countries which have on plausible grounds been held to have been the most recently peopled with plants."

Notes.

The annual spring exhibition of the Pennsylvania Horticultural Society will begin at Horticultural Hall, Philadelphia, Tuesday evening, March 25th, and continue until Friday.

At a recent meeting of 700 under-gardeners held in Berlin a unanimous vote was given in favor of an eight-hour labor law, and of setting apart the first of May as an annual workingmen's festival.

The most interesting "congress" that will form a feature of the great horticultural exhibition to be held in Berlin this spring will undoubtedly be the meeting of students and growers of conifers which is announced for the 28th of April.

Jasminum nudiflorum has been opening its blossoms sparingly nearly all winter in Central Park, and last week the long wands thickly studded with blossoms could be seen in many places above the snow. While the plant at this season lacks foliage, the contrast of the flowers with the dark green color of the bark is very pleasing.

One of the best known flower painters in Europe, Anton Hartinger, died recently at Vienna in his eighty-third year. His chief work was the preparation of water colors for reproduction in costly books, the last upon which he was engaged being an atlas representing the flora of the Alps to accompany the text of Professor Della Torre.

Mayor Hart, of Boston, has written to city forester Doogue requesting him to make flower-beds on the Common and in the Public Garden which shall imitate in form and color the United States flag, the Massachusetts coat of arms, the seal of the City of Boston, and the badges of the Loyal Legion, the Woman's Relief Corps and the Sons of Veterans. And yet it has been asserted and believed that Boston is a city of culture and refinement.

The Department of Agriculture has recently issued a circular, prepared by Mr. Fernow, which is sent out with the tree seeds that are distributed. The circular gives in brief such suggestions as to the raising of forest-tree seedlings as will be helpful to those not familiar with the practice. Of course the entire theory of raising trees from seed cannot be given in three pages, but the elementary principles seem to have been carefully elucidated so far as the space will permit. The care of seedling-trees in the nursery is to form the subject of another circular.

To illustrate how Peas are influenced by the soils in which they grow, Professor Bailey, in a late bulletin, gives these facts concerning a plot of Golden Gem Peas in the garden of the Cornell University Experiment Station. The rows began in a good rich loam and ran into a stiff and strong clay. A good sod had been turned under a few days before the Peas were sown. The ends of the rows were so dissimilar at picking-time that they appeared to be planted with different varieties. The average height of the plants in loam was eighteen inches; average number of pods to the plant, five and a half; all the pods, except sometimes the very uppermost ones, were ripe, and there were no flowers. The plants on clay were larger, deeper green, with more bloom, and a tendency, not apparent in the other case, to produce two pods on a peduncle. The average number of pods to a plant was seven; only about two-thirds of the pods were ripe, and there were still some flowers.

A young Englishman, in business in Manilla (one of the Philippine islands), interested himself at odd times in growing Orchids, collecting Phalænopsis and Ærides from the wilds, and fastening them to a tree-trunk in his garden. He sent small pieces to his friends, but only partial success attended these distant exportations. He therefore determined to cut down a tree and export the trunk with these epiphytes thickly growing all around it. The trunk came to England safely, with the clinging little plants all about it, full of life, after a journey of some 10,000 miles, and it may now be seen in the stove greenhouse of Mr. J. Andrews, Manilla Lodge, Fallowfield, standing five feet high and three feet in girth, as a trophy-column to the tact and discrimination of this young amateur. A correspondent of the *Northern Gardener*, who tells this story, adds that the handsome leaves and thick roots almost hide the bark of the trunk; and for general healthfulness he doubts whether anything in the country can equal it.

Dr. Fisher expresses a doubt whether the bee is at best the enemy or the friend of the seed-grower, as he is largely both, for without his work in carrying pollen the fruits of dicecious plants would not be fertilized, and without it, also, his mischief in mixing new varieties with inferior sorts would not be accomplished. It is true that he will give a dose of cucumber flavor to a crop of cantaloupes, if the two sorts of *Cucurbitaceæ* happen to be planted near neighbors; but, then, he offsets his bad work by producing new varieties which are sometimes of very great value. This work may be better and more wisely done by the horticultural philosopher, who acts designedly by combining size and hardiness on the one side with delicacy and productiveness on the other. This form of lottery has a few grand prizes, but a far greater number of small ones and blanks; the uncertainty of the drawing adds to the interest of the investment. The farmer oftener than the philosopher offers a new variety which the little bee has helped him to produce the year before, and of which he has known nothing until his eye has discovered the distinguished stranger among his melons, cucumbers or other ground fruits.

In a recent bulletin from the Cornell University Experiment Station, Professor Bailey states that the Crandall Currant, which was supposed by its disseminator to be a hybrid between the Missouri Currant and the common Red Currant, is really a variety of the Buffalo or Missouri Currant (*Ribes aureum*), with no indications of hybridity. It does not appear to be a well fixed variety, some of the bushes on the experiment-grounds yielding berries but little larger than the common Red Currant, while others bear fruit five-eighths of an inch in diameter. The plant seems variable also in its time of ripening. The bushes are vigorous growers, need more room than ordinary Currants, and seem now more free from insect depredations. The fruits are fair, polished, bluish black, easily separated from the stem, and therefore picked singly like gooseberries or cherries. Their flavor is agreeably sweet, but lacks character, but has none of the grossness of ordinary black currants. This currant is good for culinary purposes, both when green and ripe, and for jellies it is preferable to the ordinary kinds. The variety is quite distinct, representing a new type of small fruit, and when further selected and improved must become a staple.

The portrait of a splendid specimen of *Eucharis Amazonica* with 220 blooms is published in a late issue of the *Gardeners' Chronicle*. It was grown in the gardens of Mr. G. F. Linden, of Birmingham, and shows such exceptionally good cultivation of a plant which is often difficult to grow successfully, that the methods under which it was produced are worth attention. The specimen was grown in "soil composed of good loam, a little leaf-soil, some broken sandstone, and a few half-inch bones, with plenty (quite six inches) of drainage to allow water to escape freely." The roots were found to adhere to the sandstone and evidently derived benefit from it. "The plant was kept through the winter and spring in a temperature of sixty to sixty-five degrees, but was removed when it flowered to a cooler house, in which, if kept too long, however, the foliage suffers and decays. Very little water, and that manure water, is used directly on the soil, and then only in hot weather; but the foliage is frequently syringed with clear manure-water, used freely in the growing season, and the plants are never allowed to dry off." Mr. Bluck, the gardener who produced this specimen, thinks that too much soil in the pots and too much water at the roots is injurious to Eucharis, and he trusts more to the copious syringings with weak manure-water than to anything else to secure these results. Diseased bulbs of Eucharis, sent to this garden, were washed and placed in a pan of sand with sphagnum at the bottom, when they grew freely and were soon restored to health.